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# AGRICULTURAL EDUCATION

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[Advance sheets from the Biennial Survey of Education in the United States, 1920–1922]

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# AGRICULTURAL EDUCATION.

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Contents.—Agriculture in secondary schools—Types of schools and classes—Development of curricula—State supervision—Growth of teacher-training facilities—Relationships between agricultural education agencies—Agricultural education at meetings.

## AGRICULTURE IN SECONDARY SCHOOLS.

Data are not available that will give more than a partial idea of the extent to which work in agriculture is a part of the program of secondary education in this country. The 1922 report of the Federal Board for Vocational Education contains the most complete information available regarding instruction in vocational agriculture. Vocational agriculture as used in the Federal board's report refers to the instruction that presumably met the standards set up by State boards for vocational education under the provisions of the Federal vocational education act. Due to the fact that there are practically no objective standards by which the vocational effectiveness of this instruction may be measured, there are undoubtedly many schools not included in the report of the Federal board in which the instruction functions quite as effectively in vocational ways as does that of many schools which are included. In spite of this defect, the data contained in the report give a fairly complete idea of the present magnitude of instruction in vocational agriculture and the rate at which it has developed in recent years.

| Year. | Schools. | Teachers. | Pupils. |
|---|---|---|---|
| 1918 | 609 | 995 | 15,453 |
| 1919 | 863 | 1,201 | 19,933 |
| 1920 | 1,375 | 1,570 | 31,301 |
| 1921 | 1,722 | 2,071 | 43,352 |
| 1922 | 2,175 | 2,290 | 60,236 |

The report prepared by A. C. Monahan and C. H. Lane, for the 1916 report of the United States Commissioner of Education, contains the following summary of the status of agricultural teaching, based on as complete information as the Bureau of Education was able to obtain at that time:[1]

| | |
|---|---|
| Number of public high schools reporting teaching agriculture | 2,175 |
| Established before 1901 | 19 |
| Established from 1901 to 1905 | 33 |
| Established from 1906 to 1910 | 413 |
| Established since 1910 | 1,710 |

[1] Rep. of Commis. of Educ., 1916, vol. 1, p. 237.

| | |
|---|---|
| Reporting teaching agriculture primarily— | |
| As informational subject | 1,521 |
| As vocational subject | 566 |
| Number of persons teaching agriculture: | |
| Male | 2,007 |
| Female | 247 |
| Number of these with any special training in agriculture, including those with full 4-year agricultural college courses, short-term courses, normal school agricultural courses, summer courses, etc | [1] 1,021 |
| Number of students of secondary grade studying agriculture: | |
| Boys | 24,743 |
| Girls | 16,312 |
| Number of schools using school land for instructional purposes | 392 |
| Number teaching through home-project method | 337 |
| Number in which instruction consists wholly of classroom work | 416 |
| Number in which instruction consists of classroom work, with laboratory exercises and observation on neighboring farms | 1,064 |

The data from the report of the Federal board and the Commissioner of Education's report are not directly comparable. In case of the latter nearly three-fourths of the schools reporting indicate that their instruction is considered to be on an "informational" rather than on a "vocational" basis. Of the 566 high schools stating that their work was on a vocational basis it is doubtful if a majority of them would have conformed to the standards that have been set up by the States under the provisions of the Federal vocational education act. This does not imply that there were no outcomes of vocational value. In fact, there has undoubtedly been a large amount of dissemination of vocationally useful information as a result of the teaching of agriculture as an informational subject. The fact that these data show that 40 per cent of the students studying agriculture in 1916 were girls and in 1922 only 13 per cent were girls indicates that students are being reached under the provisions of the Federal vocational education act that are more likely to use this instruction than was formerly the case.

Information is not at hand by which it is possible to determine the effect of this rather large development in recent years of vocational instruction in agriculture on the more general instruction in this field. There has probably been some decline in enrollment in these phases, although it is possible that the entrance of approximately 60,236 students in vocational agriculture has not brought this result. It may have been offset by an extension of instruction to a larger number of schools and to the marked increase in high-school enrollment in recent years.

In recent years there has been a tendency to get the instruction in agriculture in the elementary schools on a more definite basis. This has been accomplished largely by the extension into the elementary schools of the home-project method that has been so successfully used in teaching vocational agriculture. In some States there has been developed a closer coordination of the relationships between this phase of agricultural instruction and boys' and girls' club work. This progress has not been generally marked and seems unlikely to be as long as those administratively responsible for boys'

[1] Or 45 per cent.

and girls' club work take the point of view given in the last report of the States Relations Service. C. B. Smith, chief of the office of extension work, makes the following statement in the 1922 report bearing on this subject:[2]

That the most improved phases of farm and home practices can be demonstrated by boys and girls is quite generally recognized. In fact, extension workers are realizing that many farm and home practices can best be demonstrated through boys and girls, and the latter will, no doubt, play an increasingly important part in the prosecution of the extension program of the future.

In contrast with this viewpoint of boys' and girls' club work is that of Dr. L. H. Bailey, which was given in the report of the Commissioner of Education for 1916:

The fundamental consideration is that all this kind of work is educational. It is not primarily agricultural work, not undertaken directly to improve the farming of a region. The primary consideration is its effect on the child. If we can not accept these propositions, then I should be in favor of giving up the boys' and girls' contests.

It is legitimate to use domestic animals and crops for the primary purpose of improving and advertising the agriculture of a region, but we must not use children this way. Animals and crops are agricultural products; children are not agricultural products.

If these positions are granted, we shall agree that this contest work between children must be put more and more into the hands of those who are trained in education and who carry the responsibility before the public for educational effort. I think that this kind of work should be a part of the public-school system. On their own account schools must take up this and similar work if they are to secure the best results for themselves and to cover their own fields. The organizing of laboratory work at home under the direction of the teacher is one of the most important means of tying the schools and the homes together and making the school a real part and parcel of the community.

When this time shall come the work with crops and domestic animals and home practices will be a regular part of the school day, incorporated inseparably with the program of education. We must hope for the time when there shall be no necessity for the separate organization of such clubs, the school having reached and stimulated the situation on every farm and in every home. It is sometimes said that the agricultural agents organize the contest work better than the teachers. Perhaps, but the work is essentially school work, nevertheless, and we should now be looking for results in the long future.[3]

## TYPES OF SCHOOLS AND CLASSES.

Under the provisions of the Federal vocational education act there are three principal types of organization through which the instruction in vocational agriculture has been developed. They are all-day schools, short course or part-time courses, and evening classes.

*All-day schools.*—This type of instruction constitutes most of the work that is done under the provisions of the Federal vocational education act. Of 2,175 agricultural schools reported by the Federal board for 1922, 1,937 were day schools, and they enrolled 52,961 of the 60,236 pupils that were reported.

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[2] Report of the Director of States Relations Service, 1922, p. 36.

[3] Rep. of Commis. of Educ., 1916, pp. 241, 242.

These schools are in the main departments that have been developed in the high schools, although there are some special schools of agriculture of the State, district, or county type. The pupils in the agriculture departments devote from 90 to 180 minutes per day to the work in agriculture and the remainder of their time is spent in pursuing academic subjects of the high-school program of studies. Since the typical high-school curriculum is college preparatory, the curriculum in vocational agriculture is usually a hybrid that results from introducing some instruction in agriculture into the traditional high-school curriculum. It usually supplements a foreign language. Undoubtedly there will be evolved in time a curriculum that will meet adequately the needs of those who through necessity or desire enter upon their life work immediately on leaving high school.

In addition to the school instruction there must be, under the provisions of the Federal vocational education act, at least six months of directed or supervised practice in agriculture. In most States this takes on the form of "home-project" work. This type of instruction was developed in Massachusetts by R. W. Stimson; and with more or less modification has been quite generally accepted as the most effective type of vocational instruction for youth from 14 to 18 years of age who are attending high school and at the same time maintaining close contact with the home farm. During the past two or three years there has been a growing recognition of the importance of making provision for certain types of practical work that are not readily taken care of under the typical home-project method of instruction. Numerous efforts are being made to organize such instruction on a basis that shall supplement the practical work of the home project. There remains much, however, to be done in the way of analysis of the needed skills and the determination of standards of performance for different types of farming before supervised practical work can be regarded as adequately developed.

In the typical high-school department of agriculture there is one teacher devoting all or most of his time to instruction in this subject. He is employed by the calendar instead of the academic year and devotes the school vacation to supervision of the practical work of his pupils. In some States modifications of this plan have been made in order to reach larger numbers of pupils with the instruction than would be possible under the typical conditions. These modifications usually consist of some kind of a circuit in which one teacher is responsible for the instruction in from two to five or six schools. The length of time that he spends at a school varies with the number of schools in the circuit. In case of the larger groups of schools instruction in vocational agriculture may not come more frequently than once a week. Pennsylvania, South Carolina, and New Mexico have given attention to this type of instruction. The plan apparently had its origin in South Carolina in 1914.

As previously stated, there are besides the departments of agriculture in the high schools a relatively small number of separate or special schools of agriculture. There has been practically no development of this type of school in the past two or three years. This is no doubt due to the fact that attention has been centered chiefly on the development of high-school departments. Eventually the special school may be better adjusted to the program of secondary vocational agricultural instruction than is generally the case at present. Some of the States having such schools are Massachusetts, Wisconsin, Oklahoma, New York, and Vermont. The curricula in them are from two to four years in length and the school year six or more months. In general, their curricula and courses of study are of a more "practical" character than those of the high schools, and they reach a group of students that are older than those found in high-school departments.

The 1921 report of the Federal Board for Vocational Education contains the following statement regarding the place of the day school in the program of vocational instruction in agriculture:

> Advance in the number of day schools and in the quality and standards of the work given in them, while gratifying, is not always the best evidence that a State is meeting its vocational agricultural educational needs. It is generally recognized that day schools should be generally established only after educational and agricultural surveys have disclosed definite opportunities for agricultural preparatory training on a full-day program, and have shown that this particular kind of vocational agricultural training is superior to other forms of agricultural training that might be established in the community.[4]

*Part-time classes.*—The part-time or short-course work is designed to meet the needs of boys who are engaged in farm work but are not in position to avail themselves of the regular high-school program of vocational agriculture. Instruction of this nature is usually offered during the dull season, and the courses vary in length from 2 or 3 three weeks to 18 or 20 weeks.

The enrollments in the various types of work in agriculture were not segregated in the reports of the Federal Board for Vocational Education previous to 1921, so that data are not available for earlier years. There was, however, relatively little of the short-course work previous to that time. The report for 1922 gives the following data on the part-time work in agriculture:

| Year. | Schools. | Enrollment. | Percentage part-time enrollment is of all-day enrollment. |
|---|---|---|---|
| 1921 | 82 | 1,450 | 3.3 |
| 1922 | 188 | 5,942 | 11.2 |

[4] Report of the Federal Board for Vocational Education, 1821, pp. 55,56.

In 1922 the enrollment in all-day schools increased 29.9 per cent over that of the preceding year, while in the same interval the growth in short-course or part-time work increased 309.8 per cent. This work has not generally received the attention its importance warrants. There is large opportunity and great need for further expansion of it.

Fortunately there are some facts available on this aspect of vocational education in agriculture:

The vocational bureau of the New York State Military Training Commission obtained data on most of the 16, 17, and 18 year old boys employed on farms in New York State during the year 1918. There were approximately 15,000 in the group and the median boy had completed 7.8 grades before leaving school. Without doubt most of the boys in this group, either through choice or by force of circumstances, will become farmers. They do not have the minimum training that is required for admission to the work in vocational agriculture, so that in New York State, as in most others, they are cut off from an opportunity for instruction in that field.

In 1918, there were 1,011 boys studying vocational agriculture in the State of New York. The same year a study made by the vocational bureau of the military training commission revealed the fact that there were approximately fifteen thousand 16, 17, and 18 year old boys employed on farms in the State. None of these boys were attending school. Only 1 in every 7 of the boys of this age was in school. According to the last annual report of the Federal Board for Vocational Education, the number of boys pursuing the work in agriculture in New York State had increased to 1,829 and, in all probability, there was not much change in the number of boys, of the ages indicated, living on farms.

A further statement of facts may assist in making evident the extent to which the present program of vocational education in agriculture falls short, even under the most favorable of conditions. In Chautauqua County there are nine departments of vocational agriculture and a tenth is located near the boundary line and draws most of its pupils from Chautauqua County. In all probability there is not another county of equal area in the United States that has as many departments of vocational agriculture. These departments are, in the main, well located with reference to one another. At present there are 189 pupils enrolled in vocational agriculture in that county. The study made by the military training commission in the year 1918 showed that there were 389 boys 16, 17, and 18 years old employed on the farms in the county and not attending school. Seventy-nine and five-tenths per cent of these boys were on their home farms. Nothing was available for these boys in agricultural education.

A further analysis of the conditions in Chautauqua County reveals another weakness. Of the 389 boys 16, 17, and 18 years old living on farms, only 78 had stayed in school long enough to qualify for high-school entrance. Yet the instruction in vocational agriculture in that county was limited to such boys as were in position at least to enter upon a 4-year high-school program. It is folly for us to delude ourselves with the idea that we are meeting the problem of vocational education in agriculture in any adequate fashion, as long as its opportunities are limited to those who enter high school. Apparently this delusion is general. According to the report of the Federal Board for Vocational Education, there were in 1921, 40,343 pupils enrolled in day schools which are almost exclusively high-school departments. In contrast there were 1,927 enrolled in short courses and 439 in evening classes, approximately in ratio of 20 to 1. Contrast these figures with those of the New York Military Training Commission that found in

its study that 1 in 7 of the 16 to 18 year old group of boys was to be found in school and that less than half were prepared to enter high school.[5]

The needs of this group are met differently by the various States. There has been during the past year a marked development of short-course instruction in connection with the work of the existing high-school departments of agriculture. Under this plan the teacher of vocational agriculture makes provision for handling one or more groups of boys for periods of varying length in addition to those who are pursuing the regular curriculum in agriculture in the high school. In most cases these groups come to the high schools, but in some instances arrangements are made for giving the instruction at some other center that is more convenient for the group to meet. The reports of the Federal Board for Vocational Education indicate that the States leading in the development of short courses in connection with the high school are Arkansas, Florida, New Jersey, North Carolina, New York, and Ohio.

In Iowa a definite county organization has been established for the purpose of meeting the needs of the short-course group. Under this plan a county organizer is attached to the office of the county superintendent of schools. This organizer is employed on a 12 months' basis. After a study of local conditions he determines on several centers in the county in which it seems desirable to offer short courses. Pupils are enrolled, and teachers are secured by the organizer. These teachers are brought together by the State authorities and given a week's instruction preparatory to undertaking their teaching. Each organizer is responsible for the instruction at one center, and following the closing of the short courses he takes responsibility for following the supervised practical work of the pupils who were enrolled in all the centers in the county. This activity, with the making of plans for short courses for the ensuing year, occupies his time during the months when instruction is not in progress. The short courses run for about 12 weeks.

Minnesota has apparently been fairly successful in reaching this group of farm boys by developing courses of 24 weeks in length in connection with the existing high-school centers. The program of studies is not limited to agriculture, but includes subjects that are designed to give the prospective farmer a broader outlook on life. The reports show that the pupils reached were, in general, considerably older than those found in the regular departments of vocational agriculture.

The last year or two has witnessed a general awakening on the part of those interested in the development of instruction in voca-

[5] G. A. Works in Vocational Education Magazine, September, 1922, pp. 9–10.

tional agriculture to the importance of short-course instruction, and it may be expected that there will be a relatively large development of this work as contrasted with the work of the all-day school.

*Evening classes.*—The work in these classes is usually designed for adult farmers. Under the provisions of the Federal act persons 16 or over may be admitted. The report of the Federal board for 1922 gives the following data regarding this type of instruction:

| Year. | Number of schools. | Enrollment. |
|---|---|---|
| 1921 | 30 | 1,333 |
| 1922 | 50 | 1,139 |

The fact that both evening and short-course instruction reaches a considerable number of adult farmers raises a problem of relationship with the extension work that is being done by the land-grant colleges under the provisions of the Smith-Lever law:

This law was in operation several years prior to the passage of the Federal vocational act, and it is very unlikely that Congress intended to provide for a duplication of service provided for by the former when it passed the latter. In fact, it is a reasonable certainty that it was regarded as a supplementary measure. It will be unfortunate for both activities if there is a considerable growth in this duplication, thus resulting in the extension service of the land-grant colleges and State boards for vocational education working at cross purposes.

Undoubtedly there are instances in which the State and local authorities interested in vocational education in agriculture are justified in endeavoring to reach the adult farmer. Wherever they undertake work with this group there should be consideration of the following:

1. Work with adult farmers should be a secondary consideration as contrasted with meeting the needs of employed farm boys from 16 to 24 years of age. Throughout the country this group is much greater in number than is the group to be found enrolled in high-school courses in agriculture, and, as a whole, relatively little has been done toward meeting its needs for vocational education in agriculture. They are an important group to reach, because there can be but little doubt that a large percentage of them will become farmers and they are at an age when they have the time for courses of a fair degree of length and intensity. It is true that they are a difficult group to reach, largely due to the fact that they are "school sick," but the success that many teachers are having shows that it is possible to interest them.

2. When work is undertaken with adult farmers, it should be under the administrative direction of the State and local extension authorities. The instruction should be in accord with the plans of these agencies. It is extremely unfortunate that, in some instances, State authorities for vocational education are encouraging teachers of agriculture to undertake essentially the same or very similar work with adult farmers to that which is done by the extension service of the land-grant colleges, without any effort at coordination. In some cases an even more serious blunder is made, as when a State board for vocational education undertakes the employment of specialists in technical agriculture to conduct extension activities with adult farmers. The experience that State departments of agriculture have had in conducting educational work should be ample evidence of the dangers of such a policy.[6]

[6] G. A. Works in Vocational Education Magazine, November, 1922, pp. 177, 178.

## DEVELOPMENT OF CURRICULA.

There can be but little question regarding the stimulating influence of the provisions of the Federal vocational education act on the development of instruction in vocational agriculture in secondary schools. There are, however, many problems to be solved before the work can be considered on an adequate basis. One of these in which some progress is being made, but which is still far from solution, is the curriculum. Reference has been made to its hybrid character. Its more adequate development will, undoubtedly, be in a large measure contingent upon the development of curricula in high schools that are better adapted than those of the present to the needs of the rapidly growing pupil population of these schools. The work in vocational agriculture is rather generally to be found in the rural high schools, which are usually relatively small. The small schools have not made so much progress as the larger schools in inclusion of other than the traditional subjects of instruction in their educational offering, and hence are more backward in securing complete adaptations of the curriculum in agriculture.

There still remains much to be done in adjusting the course of study in agriculture to the agricultural demands of the regions in which the schools are located and to the needs of different groups of students. As has been stated, the development of the secondary instruction in vocational agriculture has been largely in connection with the existing high schools. Since the usual high-school curriculum is four years in length, the course of study in agriculture has been of the same length. This is the situation regardless of the fact that, in many instances, the character of the agriculture of the regions in which the schools are located does not demand a course of that duration. In other instances the students with genuine vocational interests have left largely before the end of the high-school period.

The courses that are offered are still determined largely by text-books, preparation of teachers, bulletins, and general outlines that are prepared for state-wide use. Needs of pupils, demands of farming, and rural citizenship do not receive adequate consideration. Progress is being made in the study of local farming enterprises and the development on the basis of these studies of courses that are more likely to function in the vocational career of the students than are the more formal courses based on texts and general outlines.

*Factors contributing to improvement of courses of study.*—The means that have contributed to this end are:

1. The more adequate development of the home project. This growth has involved the gradual recognition of the pupil's enterprise on the home farm as the core of the instruction. There is also a growing recognition of the importance of so selecting the home proj-

ects that they shall be representative of important farm enterprises of the community.

2. The use of the farm survey as a means of instruction. This method results in making students aware of the existence of problems in the farming of a community and the means that are being used by farmers in meeting them. It furnishes a definite motive for the use of books and bulletins and is likely to result in more intelligent study on the part of the pupil.

3. More recent than the project and the survey is the job analysis that has received consideration during the past year or two. While its use will undoubtedly make an important contribution to the more effective teaching of vocational agriculture, it still is in the experimental stage.

These means of making more effective the instruction in vocational agriculture have received much consideration by the leaders in this field of education during the past two or three years, but they have not yet affected in any large way the instructional work of the rank and file of teachers.

## STATE SUPERVISION.

One of the most marked developments in the past few years has been in the growth of State supervision of the instruction in agriculture. Previous to the passage of the Federal vocational education act there were only five States that had provided specially prepared supervisors, although there were 39 States giving aid for instruction in agriculture. The report for the Federal board for 1922 shows that practically all the States were then employing a full-time supervisor and the remainder had the services of part-time supervisors. There were engaged in the work 42 full-time and 27 part-time supervisors. Most of these persons had more or less of special preparation for their work. Thus the tendency has been to develop the supervisory staff on a State basis. In the majority of the States the question of the wisdom of this organization will have to be faced. For most States it seems desirable for the State board for vocational education to look forward to the time when it will limit its activities primarily to inspection and to stimulating the development of relatively local agencies to carry the supervisory responsibilities.

## GROWTH OF TEACHER-TRAINING FACILITIES.

Even more marked than the development of the supervisory agencies has been the growth of facilities for the training of teachers of vocational agriculture. In every State the land-grant colleges, or these institutions in cooperation with State colleges of education, have been designated by the State boards for vocational education as the agencies to train teachers of agriculture. The growth during the

five years that have elapsed since the passage of the Federal vocational education act is shown by the following figures from the report of the Federal Board for Vocational Education for 1922:

| Year. | Teachers employed in training. | Students in training. |
|---|---|---|
| 1918 | 116 | 1,534 |
| 1919 | 222 | 1,334 |
| 1920 | 293 | 2,310 |
| 1921 | 285 | 3,470 |
| 1922 | 253 | 4,112 |

Most of the instructors are engaged in offering professional instruction to prospective teachers, although in some institutions the Federal funds have been used to develop technical courses in agriculture that were especially needed by teachers of vocational agriculture.

The work of the teacher-training departments is not limited to the instruction of students in residence. In many States provisions have been made by which improvement of teachers in service is conducted.

The strengthening of the instruction in vocational agriculture is largely dependent on the development of strong teacher-training resources. The organization of the more formal phases of this work was relatively easy as contrasted with the development of facilities for providing supervised teaching experience for those in training as teachers. In giving opportunity for such experience to prospective teachers of agriculture there are several difficult questions that do not have to be met in preparing teachers of the academic subjects. In case of the latter the provision of a training school associated with the college or department of education is usually adequate. In the instance of agriculture it is necessary to have a group of pupils in the training school that is vocationally inclined toward farming. Many of the land-grant colleges are not so located that it is possible to have such pupils. Even when they are available it is not in such numbers that an adequate amount of supervised teaching experience can be given the prospective teachers. It is highly desirable that in this period of pre-service training the students should have the experience of supervising the home projects of the pupils and guide them in conducting farm surveys. These call for a setting on the part of the training school that is pronouncedly rural. In meeting this situation different training institutions have worked out plans adapted to local conditions. In some instances during the period of pre-service training the candidate is placed in a department of vocational agriculture as an assistant or "apprentice" working under the guidance of the regular teacher and under the general supervision of the staff of the teacher-training departments. The length of these periods of service vary from a few weeks to as much as a semester.

Usually students receive collegiate credit for this work. In other instances the training institutions have one or more training departments of vocational agriculture associated with them. These departments are so located that the students in training do not have to drop their other collegiate work. They usually spend a half day in gaining teaching experience under supervision and the rest of their time is devoted to the other phases of their college work.

The devices vary for different situations, but they all have a fundamental conception of the importance of providing an opportunity for supervised teaching experience under conditions that approximate those that are likely to obtain in the schools in which the teachers will later render their service. The difficulty of providing adequate experience has undoubtedly been a factor in stimulating the development of the itinerant teacher-training work. It is an attempt to remedy the weaknesses of the pre-service training by a program of in-service training. The teacher-training departments have made marked progress in strengthening both of these phases of their programs during the past year or two. There is, however, general recognition of the fact that the work is not yet on a satisfactory basis.

### RELATIONSHIPS BETWEEN AGRICULTURAL EDUCATION AGENCIES.

The rapid development of work in vocational agriculture has raised some problems of relationship between work organized under the provisions of the Federal vocational education act and the Smith-Lever Act. The frequent recurrence of some of these problems finally led to the appointment of a joint committee representative of the following: Association of Land-Grant Colleges, National Society for Vocational Education, Department of Rural Education of the National Education Association, and the American Association for the Advancement of Agricultural Teaching.

The report of this representative committee undoubtedly marks progress and its report is certain to have a significant influence on the development of policies throughout the country. Portions of the report are here quoted for this reason:

> Because of the outstanding importance to the country at large that there shall be developed a well-rounded, thoroughgoing, and harmonious program for the promotion of the vocations of agriculture and home making—a task inviting the highest abilities of both the extension and the vocational forces—there was need to see the field in its entirety and to propose such adjustment of relations within it of the two great agencies created by law to do the work as would leave no gaps and would assign to the extension and to the vocational forces the phases of work for which they, respectively, are best fitted and which comply with the clear intent of the laws. The highest service in this great field will spring from a spirit of copartnership, or mutual respect, and from intimate association on a clearly defined basis, with the single purpose of serving the complete vocational needs of the communities. When both of the agencies shall have

been fully developed on a carefully adjusted basis, there will be large place for them both in every community.

The committees have taken as their starting point the cooperative extension or Smith-Lever Act of 1914, and the vocational education or Smith-Hughes Act of 1917, as these acts are national in scope, have been accepted and approved by the legislatures in all the States, and they impose certain common obligations on the agencies charged with their respective administration in the States. While in their major aspects the objects and methods provided for in these acts are clearly distinct and separate, there are other aspects in which the functions are less clearly distinguished, making possible parallelism and overlapping unless the respective spheres of activity are determined by agreement between the officers responsible for the administration of the two acts within the several States, and unless such agreement is faithfully observed in a spirit of mutual respect and helpfulness. The problem is further complicated by the great diversity in State laws respecting functions assigned to the land-grant colleges, on the one hand, and to the State boards or departments of education on the other hand. These latter complications make it impossible to draw a general memorandum of understanding which will fully apply in all the States. In the majority of States there will need to be special agreements based on existing legislation in the States.

The term "extension work" shall be understood to include, aside from special duties assigned by State laws in the several States, cooperative agricultural extension as defined and provided for in the Smith-Lever Act of May 8, 1914, accepted by the legislatures in the several States. The law provides that such extension work "shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident at said colleges in the several communities and imparting to such persons useful and practical information on said subjects through field demonstrations, publications, and otherwise, and to encourage the application of the same."

*Methods of types of extension teaching.*—The extension teaching is, as a rule, conducted by means of cooperative projects with the county farm bureaus and other local agencies or groups. These projects are agreed upon between local members of the farmers' organizations and the specialists in the extension service of the college of agriculture. They are then carried into effect, usually by the following and other methods:

(*a*) Cooperative demonstrations given in fields and barns and other appropriate places.

(*b*) Lectures and addresses before public meetings, including community meetings, meetings of general groups, and meetings of special groups.

(*c*) Extension schools, in which instruction in subject matter of immediate practical interest is given over a period usually from three to five days in length, and seldom exceeding two weeks, in the localities where the students reside. Short courses or schools held at the agricultural college may be of any length required by the work to be done.

(*d*) Exhibits at fairs, expositions, and other local and State-wide meetings, at which subject matter is graphically presented.

(*e*) Supplying technical subject matter through bulletins, leaflets, special memoranda, outlines, and other means.

(*f*) Junior extension or boys' and girls' club work, which is the giving of instruction in and the dissemination of useful and practical information concerning special problems of immediate economic importance to the agriculture and home making of the several communities to boys and girls. This work is done by means of definite projects, conducted, as far as possible, at the workers' homes, under the supervision and direction of a competent leader, and by lectures, demonstrations, bulletins, circulars, correspondence, and personal visits. It involves the actual selection of a definite line

of work by the worker. It presupposes that the planning, the keeping of an accurate cash and labor record, and, as far as may be possible, the manual labor will be done by the project worker and that he will pursue a definite line of reading and study in relation to the project.

(*g*) Aid in meeting special problems of individual farmers.

(*h*) Conferences with county officers and representatives to arrange, organize, and supervise demonstration and other work.

The State-extension service at the college of agriculture is responsible for the organization and administration of all forms of effort defined herein under extension work.

Public-school education in agriculture and home economics aims to give an appreciation of the things of agriculture and home making, to develop acquaintance with the occupations, and to provide training in the elementary processes and practices requisite to wise selection of and efficient work in the vocations of agriculture and home making.

*Agricultural instruction.*—Three types of agricultural instruction of less than college grade may be offered by the public schools: (1) Prevocational agriculture in the grades, with or without supervised practice; (2) general agriculture in high school, with or without supervised practice; (3) vocational agriculture.

(1) Prevocational agricultural education is construed to mean the instruction offered as part of a general education in the grades to pupils, the majority of whom are less than 14 years of age.

(2) General agricultural instruction for students regularly enrolled in the high school includes work in any of the phases of agriculture.

(3) Vocational agricultural education shall mean that education of less than college grade, which is designed to meet the needs of pupils 14 years of age or over who are regularly enrolled for systematic instruction under the supervision of the schools and who intend to follow agricultural pursuits, and which gives the knowledge and skill necessary to the control of plant and animal production to the end of economic profit, and which is, furthermore, to articulate with other education so as to promote a desirable type of farm and community living.

By systematic instruction is meant instruction in regular, organized classes which meet at reasonably frequent intervals, at given centers, to pursue a consecutive series of lessons involving lectures and laboratory work. Systematic instruction specifically excludes general farmers' meetings, farmers' institutes, and extension schools of two weeks or less duration.

The organization for this work may include such provisions as the following, given in high schools and in special schools or classes:

(*a*) Four years' course. This course is designed for pupils regularly enrolled in the school who desire to pursue a four-year high-school course in agriculture.

(*b*) One, two, or three years' course. Such courses are designed for persons who wish to enter school to study agriculture for a period shorter than the full high-school course.

(*c*) Short-unit courses. Such courses are designed to meet the needs of persons who have left school and who desire to enroll for instruction in special phases of agricultural production during the season when farm work is slack. These courses will normally extend over a period varying from two weeks to three months and will be offered either at the school or in a community center tributary to the school.

(*d*) Evening classes. Such classes may be organized to meet the needs of persons engaged in farming who desire systematic instruction in special phases of their work. Instruction will be conducted by means of discussions, lectures, and demonstrations, and will usually be given one or more evenings a week for a period of several weeks.

(*e*) Part-time classes. Such classes are designed primarily for boys 14 years of age or over who are not enrolled in the above classes.

It is recognized that the functions, obligations, and responsibilities of the parties to the agreement, as defined by law, may be similar, with the possibility of overlapping, as in the fields of (1) the junior project work of the schools and the junior extension (boys' and girls' club) work of the college both in agriculture and home economics; (2) the part-time and evening home-making courses of the State board for vocational education and the home-economics extension work of the college; and (3) the short-unit courses in agriculture and home economics in the public schools and the extension classes conducted by the land-grant colleges. In a spirit of fairness to both groups of interests, this report seeks to present a basis for clear differentiation of the functions of the respective agencies in these closely related tasks. It is proposed that the work in these related fields shall be made a matter of cooperative agreement in the several States. Such cooperative agreement should recognize the following facts and principles:

1. It is the function, duty, and responsibility of the public school to provide education for all children and to provide such adult education as is authorized by law.

2. Under the law it is the function and duty of the land-grant college of agriculture to maintain extension service. The theory underlying extension service is that it is, first, to provide supplemental education for persons engaged in agriculture and home making, and, second, to enable the college and the Federal Department of Agriculture to bring their advances in knowledge to farmers and their families who can make the applications. Furthermore, by virtue of its staff of technical specialists and its responsibility for training vocational teachers, the land-grant college is in a position to furnish technical information and advice in the fields of agriculture and home economics to vocational work in the schools.

3. It is clearly recognized and affirmed that the college of agriculture is the source and authority in the State in technical subject matter in agriculture and home economics. The principle should be clearly observed that neither the State nor any lesser administrative unit charged with the supervision of vocational education should employ any itinerant subject-matter specialists for the purpose of giving technical instruction in any phase of agriculture or home economics. In so far as the vocational schools may have need for the assistance of technical specialists other than the regular vocational teacher or teachers in the local schools, they should look to the college of agriculture to supply such specialists. If, by reason of limitation of funds, the college is unable to meet all demands for aid on technical matters, the remedy is to be found in strengthening the resources of the college to fully meet the requirements and not in establishing subject-matter specialists as part of the State vocational system.

4. There are three types of situation to be considered: (*a*) Where agricultural and home-economics education is fully developed by the local schools; (*b*) where such education has not yet been undertaken by the local schools; (*c*) where such education is in process of development by the local schools.

(*a*) Where the school provides a comprehensive program of agricultural and home-economics education which meets the needs of children and adults, through systematic instruction and supervised practice, the extension forces of the land-grant colleges shall not duplicate such work of the schools, but shall rather cooperate with the schools by providing, on request, subject matter, special lectures, conferences, and other similar services. This shall not be interpreted to limit the freedom of the extension forces to prosecute their extension work through local organizations of farmers.

(*b*) Where the school does not provide such a program of instruction in agriculture and home economics, the extension service of the college should organize extension work. In such localities the school should give its fullest support and cooperation to the extension workers.

(c) It is recognized that in some places schools will be in the process of developing such educational programs. In these cases the following principles should apply: Extension workers should confine their work with children to those whom the school does not enroll in systematic vocational or prevocational project work, including supervised home practice, unless requested or authorized by school authorities to enroll them. The school should organize its work with adults to provide systematic vocational instruction as defined herein. The work should offer its facilities to the junior extension worker wherever the school has not in reasonable operation vocational or prevocational project work accompanied by supervised home practice.

5. Before undertaking junior extension work in any county the extension division should submit in writing to the county superintendent of schools the plans proposed for junior extension work in that county and should endeavor to arrange for a basis of understanding and cooperation. Copies of plans, when agreed upon, should be filed with the State department of education for consideration before being put into operation.

6. The State department of education should look to the land-grant college to furnish technical subject matter in agriculture and home economics in the form of outlines, leaflets, and bulletins for use in the public schools. It is understood, however, that no such material in agriculture and home economics should be used in the schools until approved by the State department of education.

## AGRICULTURAL EDUCATION AT MEETINGS.

*Association of land-grant colleges.*—The thirty-fifth annual convention of the Association of Land-Grant Colleges was held at New Orleans, La., November 8–10, 1921. The presidential address of Dean H. L. Russell, of the college of agriculture, University of Wisconsin, dealt with "The agricultural experiment station in middle life and after." The following are quotations from this address:

The organization of the American experiment station, based on the Hatch Act of 1887, came as a necessary corollary to the teaching college of the earlier decades. Here through experimental inquiry new knowledge was discovered, new principles uncovered which would guide to better practice.

What this system has now brought about the entire educational world knows. The American system of education in the applied lines as given in the land-grant colleges has long been the object of admiration and emulation in many other countries. The influence of the American experiment stations has, I believe, been more marked than similar institutions in Europe in the main, because they have been more definitely articulated with the people whom they were designed to serve, through the fact that they were organized for the most part in direct connection with the agricultural colleges of their respective States.

The rounding out of this system of agricultural endeavor reached its final fruition in the passage of the Smith-Lever Act for the extension to the masses of the knowledge so gained. This triple grouping gives solidity and stability to this educational system. A three-legged stool is a firmer foundation than a two-legged support.

*Necessity of maintaining proper balance within agricultural colleges.*—To maintain a proper balance between these three lines of educational activity—teaching, research, and extension—is to keep these forces of the State in proper relation for continued growth. These various activities should be kept abreast of each other and not tandem. All of them are equally important in that each contributes to strengthen the other.

*Educational balance changing in late years.*—The rapid expansion of our colleges in number of students within the past decade has completely changed the balance between teaching and research. In the engineering field of the land-grant college

teaching has always dominated research, but even a decade ago the enormous influx of students into the agricultural courses in most institutions had only begun prominently to manifest itself. The inability of most institutions to adjust their staffs quickly to meet this rapid influx led to increasing assignments of teaching being imposed on staff members who heretofore had had more time for research. A 10 or 20 per cent increase in student body at the opening of the fall semester had to be taken care of. To do this many a piece of valuable research had to be laid aside, owing to the unexpected demands made by this influx of students for which no adequate provision had been made. So frequently has this situation developed in the past decade that it may almost be said in some institutions to have become habitual. And habits are bad. One may make a mistake once and it may be excused or overlooked, but when the same mistake is repeated it becomes a habit, and habits are often only an excuse to cloak a crime.

Another pressure that has developed in our colleges with unwonted intensity during the past decade is the unparalleled expansion of extension activities. This work has been the logical fruition of the developing agricultural educational system. If agricultural education is worth anything, it ought to be utilized in the main by those who live on the soil. An expansion in the function of an educational institution to meet the needs not only of the student body that comes to its doors but the great farming public who have a right to look to the college for the application of its research to actual practice, was in process of rapid development, even before the passage of the Smith-Lever Act. But the war accentuated the acceptance of this service. The drives for food production, which were possible through the organization of the emergency food agents, and the relative success attained through this instrumentality, have led to a public support and approval of extension work that is little short of marvelous. In 28 States the increase in extension funds by direct State appropriation had been approximately a million and a half dollars. This in large measure has been due to the provision in the Federal statute requiring the State to meet with additional funds the increasing appropriations made by the Federal Congress.

Extension work is popular because it performs a service that is appreciated. Its support is readily forthcoming because the taxpayers who pay the cost see that they themselves are getting some direct benefit from their money.

But with reference to research, there is no such outside pressure for the rapid and aggressive prosecution of the work of the experiment station. Here and there some farmer raises a question that bothers him and for which no solution has been found. He may put the problem to his experiment station and urge them to undertake its solution, but this is generally a still, small voice of individual request compared with the general demand which comes from the resident student or the farming community. Who is there that has in mind constantly the necessity of keeping up the supply of research to vivify and vitalize the character of the teaching and extension work as well!

Lack of adequate financial support in the matter of salary increments and the unusual competition of a commercial character which prevailed during the boom days of 1919 and 1920 made it increasingly difficult to hold promising young men in the field of research. The seed which was sown that year will show in the scientific results of the next decade. It was almost useless to talk to the graduate of a year or two ago and try to enlist him to enter the field of experimental endeavor. When commercial concerns stood ready to offer the graduate just out of college two to four times what the salary roll of any college could then warrant, and when living expenses were at the peak, it was scarcely to be expected that the promising young graduate would be willing to take up an academic career where the prospects were no better than those which prevailed at that time. With the commercial depression now on, conditions are again changing, and it may be expected that we are about to enter an

era in which more nearly normal relations are apt to obtain. In any event, for the sake of research in the future, it is incumbent upon administrative authorities to see that the most likely of our youth are given an opportunity to develop in this field.

*Experimental work needs more adequate support.*—This can not be done, however, without adequate resources for the experiment stations. The inadequacy of financial backing of these institutions as a whole is evident when one realizes how few of the States have supplemented the Federal Hatch and Adams funds in any material way. From the standpoint of funds the total resources of the stations have not been increased during the last six years, and, in the meantime, operation costs have been substantially doubled. For the year 1920 funds in a half dozen States were actually decreased over pre-war figures. Doctor Allen has just informed me that a similar situation has been reported for 1921.

*More fundamental research now required.*—In the field of production a more fundamental type of experimentation is now required than obtained a decade or so ago. The questions that lay near the surface and were easily asked have been easily answered. As the miner's shaft sinks deeper and deeper into the earth, more and more preparation has to be made to handle the problem of ore removal in a systematic and economical manner. As the depth increases, the water has to be pumped out, the lodes timbered and shored up, and many things done that contribute essentially but only indirectly to ore removal. So, too, with our more fundamental inquiries. Disease can not be cured until the cause is first ascertained, and even then the relation of host to parasite may involve physiological studies that lead far afield from the immediate object of treatment. The deeper we go into the problems of feeding, the more fundamental must our nutrition researches become. If we start on a practical problem of a pig-feeding experiment, we may before we get through find ourselves deep in the study of vitamines on such test animals as white rats and guinea pigs. The advances that have been made in recent years in our knowledge of nutrition have acquired just as fundamental study as Röentgen gave to the X ray or Madame Curie to radium.[7]

Other subjects considered at the general session were: Relation of the Federal Bureau of Education to the State universities and colleges, Dr. John J. Tigert, United States Commissioner of Education; The world's need of Russia, Alonzo E. Taylor; Department extension plans, C. W. Pugsley, Assistant Secretary of Agriculture; The graduate work in the Department of Agriculture, E. D. Ball, director of scientific work.

Besides the general sessions there were sectional meetings devoted to resident teaching, extension work, and experiment station work. The sessions of the resident teaching section were devoted largely to a consideration of objectives and instructional problems in the agricultural college. The committee on instruction in agriculture, home economics, and mechanic arts reported on "Improved college teaching in vocational subjects." The following quotation from the report is indicative of the need of a larger opportunity for college teachers to have freedom for further study:

The replies indicate that in a few institutions quite general advantage is taken of the opportunities to do advanced work or to acquire professional training; in one-third of the institutions teachers rarely take advantage of such opportunities; and in eight of them (19 per cent) both presidents and members of the staff agree that there

[7] Report of Land-Grant Colleges, 1921, pp. 31–37.

are no opportunities for professional improvement. In several other institutions there is disagreement between members of the faculty as to whether opportunities for professional improvement are or are not afforded.

As to the number of teachers who have been absent for study the replies from 411 teachers indicate that nearly 80 per cent of them had been absent once at least, about half of them in vacation periods.

Our studies indicate that to the extent that opportunities to get away from the home institution for professional improvement are available and are well understood by college teachers, fairly good use is made of them. The experience of two or three institutions in developing special conferences or in employing special lecturers to aid college teachers in their effort for professional improvement shows that much can be accomplished in this way. It seems pertinent, therefore, to suggest:

(1) That college presidents, deans, and heads of departments study their own facilities for helping their teachers to improve their work.

(2) That a definite policy with reference to sabbatic leave and other leave for professional improvement be adopted by each college, and that all of these facilities be made known to all of their teachers.

(3) That teachers be encouraged in every way possible to study at other institutions where good opportunities for professional study are offered. It would be a good thing if colleges had funds that could be made available to pay the expenses of a few of their teachers each year to attend summer schools at other colleges.[8]

That there is a growing recognition of the importance of professional training for those who plan to enter the teaching service in the land-grant colleges is shown by the recommendations that were presented by the committee on instruction at the 1922 session of the Association of Land-Grant Colleges. They are as follows:

1. That the Land-Grant College Association declare this year in favor of professional training for college teachers.

2. That beginning this year the land-grant colleges make particular efforts to improve their methods of teaching by some special means best suited to their respective facilities.

3. That a number of colleges having strong departments of education offer immediately professional courses for graduate students preparing for college teaching, including the development of graduate work, with special emphasis on its application to the technical fields of agriculture, home economics, and engineering.

4. That until such time as courses in methods of college teaching can be made readily available to teachers of technical subjects, these teachers be permitted and encouraged to avail themselves of such courses in educational psychology and the principles of teaching as are readily accessible, even though these courses are not designed primarily to meet the needs of college teachers.

5. That the institutions with well-established departments of education make an effort to offer strong summer courses, so that members of the teacher-training staffs in other colleges may be given opportunity to pursue special work in these colleges.

We believe and urge further:

6. That greater use should be made of departments of education and that these departments should become service departments in connection with the instructional work of land-grant colleges, as well as training departments for teachers.

7. That the land-grant colleges make definite and liberal arrangements for professional training of teachers in service and urge such teachers to take professional courses at summer schools or elsewhere for at least two successive years.

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[8] Report of Land-Grant Colleges, 1921, p. 96.

8. That instructors in the technical departments be urged to pursue graduate work in education with particular emphasis on research in some problem of teaching in their technical fields.

9. That frequent conferences should be held of teachers handling the same or related subjects. These conferences should aid in developing esprit de corps among the instructors, in improving teaching methods, in considering textbooks, in revising schedules of assignment, and in scrutinizing teaching content.

10. That much attention should be given by the heads of departments to guiding younger teachers. Under supervision beginners in teaching should be given opportunity to teach a variety of subjects, thus broadening the horizon of their interests.

11. That experienced and successful teachers should have charge and take part in teaching introductory and basic courses.

12. That beginning with 1925 candidates for teaching positions in land-grant colleges be required to have at least 6 semester hours of professional training, including courses in educational psychology and methods of teaching. As soon as practicable this requirement should be increased.

The last year or two have witnessed considerable activity on the part of colleges of agriculture that indicates a recognition of the importance of good teaching. In a number of institutions leading educators have been secured for the purpose of addressing the faculties on teaching problems. In other cases, more formal conferences dealing with educational questions have been organized, and there has been a very general increase in the demands made on the departments of education to assist other departments with problems of selection, organization, and presentation of teaching content.

*National Society for Vocational Education.*—As this body is now organized there is a section devoted to agriculture with a vice president in charge of it. The last meeting was held in Detroit, Mich., on December 1 and 2. The discussions were devoted largely to a consideration of the teaching problems involved in the development of agricultural instruction under the provisions of the Federal vocational education act.

*The American Association for the Advancement of Agricultural Teaching.*—The attendance at the meetings of this body apparently has been decreased as a result of the development of the agriculture section in connection with the National Society for Vocational Education. As usual, the 1922 meeting was held in connection with the meeting of the Association of Land-Grant Colleges. The questions receiving most consideration were graduate work in agricultural education and the training of teachers of vocational agriculture.

*Educational work of the Department of Agriculture.*—October 1, 1921, the Office of Extension Work in the North and West was combined with the similar office for the South, so that at present the extension activities of the department are handled coordinately through one office. Something of the magnitude of this work may be gathered from expenditures as given in the 1922 report of the States Relations Service:

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| Washington administration | $235,000 |
| State administration | 1,009,847 |
| County-agent work | 9,670,786 |
| Home-demonstration work | 2,980,741 |
| Boys' and girls' club work | 1,244,092 |
| Extension specialists | 3,182,747 |
| Extension schools, fairs, publications, and miscellaneous | 409,147 |
| Total | 18,732,360 |

The work of the county agricultural agents has been somewhat complicated by the attitude of certain business interests toward the agents aiding farmers in their purchasing and marketing problems. Some have held the view that it was the business of the county agents under the Smith-Lever Act to assist the farmer with his problems of production, but that he was outside his province when he attempted to help in his cooperative enterprises. The view that has come rather generally to be accepted by the administrative authorities, both State and Federal, is given in the report for 1922 of the States Relations Service, as follows:

> The carrying of extension work in marketing by county agents is an entirely proper extension activity, and that it is as much the business of such agents to aid farmers in an educational way in their marketing problems as it is to counsel with them on matters of production. This point of view has been generally accepted by administrative officials in charge of cooperate extension work in all of the States, with the understanding, however, that the agent shall not himself buy or sell for the farmer or any farmers' association, but rather shall teach farmers the principles and methods of marketing, cooperatively or otherwise.
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> During the year the fact has also been impressed upon the public consciousness that the county agricultural agent is essentially a public official and therefore may engage with propriety only in business of a public nature, being administratively responsible to the land-grant college of the State concerned, regardless of the sources of funds which enter into his employment.[9]

It will undoubtedly be some time before this view will be universally accepted by business interests.

*Boys' and girls' club work.*—According to the report of the States Relations Service for 1922 there were engaged in boys' and girls' club work 122 State club leaders and 201 county leaders; and, in addition, a large proportion of the 2,853 county agricultural and home-demonstration agents were giving some time to this activity. The total enrollment for the year was 490,642, and the total value of the products was computed at $7,069,877. The report indicates that definite effort has been made to secure closer integration of this work with the activities of the farm and home bureau organizations, but there is no statement regarding attempts to emphasize coordination of the work with the school system so that the educational phases may receive more general recognition than is now the case.

[9] Report of the Director of States Relations Service, 1922.

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